

## NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

### FACT SHEET

(Pursuant to NAC 445A.874)

Permittee Name:	<b>Truckee Meadows Water Authority</b>	Type of Project:	<b>Aquifer Storage and Recovery</b>
Project Name:	<b>TMWA</b>	Address:	<b>P.O. Box 30013</b>
Permit Action:	<b>Renewal - UIC Permit</b>		<b>Reno, Nevada 89520-3013</b>
Permit Number:	<b>UNEV92200</b>	Injection Wells (#):	<b>twenty-three</b>

#### **A. Description of Discharge**

**Location:** Twenty-three (23) injection wells, located in Sections 6 and 7, T18N, R20E; Sections 12, 15, 16 and 35, T19N, R19E; and Sections 6, 7, 8, 12, 17, 18, 30, and 31, T19N, R20E., MDB&M, Washoe County, Nevada. The 12 to 18 inch diameter injection wells are 260 to 826 feet below ground surface (bgs) with a screened interval starting from 110 feet bgs and extending to the depth of the wells. Groundwater is present at a depth from 0 to 88.5 feet bgs.

Latitude and longitude data have been provided for each well and are attached to this fact sheet.

**Characteristics:** All injectate is treated surface water from the Truckee River obtained through Truckee Meadows Water Authority's (TMWA's) Glendale and Chalk Bluff Treatment Plants. The average TDS of the injectate is approximately 130 mg/l and meets all other drinking water standards.

#### **B. Synopsis**

The project area is located in the Truckee Meadows area (see map). TMWA's artificial recharge project was implemented and operates to achieve the following objectives:

- Seasonal storage and recovery of water
- Long-term storage, or water banking.
- Emergency storage
- Restore groundwater levels
- Improve water quality

TMWA holds Permit R-010 with the Nevada Division of Water Resources for the recharge project.

TMWA has operated the Aquifer Storage and Recovery (ASR) project since Sierra Pacific Power Company (SPPC) divested this water utility in 2001. SPPC operated the ASR project from 1993-2001. The intent of the project is to inject treated surface water (Truckee River water) through wells during periods of low water demand, store the recharged water in the aquifer near the wells, and withdraw the water during periods of high demand. The ASR project also helps to keep low levels of arsenic in the View Street, Lakeside and Greg Street wells and to decrease the impact of perchloroethene/trichloroethene (PCE/TCE) intrusion on the Poplar #2 and Fourth Street Wells. TMWA has been pilot testing ways to reduce the arsenic concentration at Poplar #1 with injected water.

SPPC had requested to remove four wells (Mill Street Well, High Street Well, Morrill Avenue Well, and Kietzke Lane Well) from the permit because of PCE contamination problems. These wells were replaced with the View Street well, Hunter well, Glenn Hare well and Reno High well (aka Idlewild well). Due to high levels of PCE, and because these wells are pumped and treated to contain PCE in the nearby vicinity, the following wells may not be used for recharge under this permit: **Mill, High, Kietzke, Morrill and Corbett**. Written authorization from the UIC Program must be received by the permittee to use these wells for recharge in the future.

The wells on the existing permit have been divided into zones for sampling and monitoring purposes. The recharge wells and zones are identified as:

<b>Zone 1</b>	<b>Zone 2</b>	<b>Zone 3</b>	<b>Zone 4</b>
Glenn Hare	4 <sup>th</sup> Street	21 <sup>st</sup> Street	Delucchi Lane
Hunter Lake	El Rancho Dr.	Galletti Way	Holcomb Lane
Reno High (Idlewild)	View Street	Greg Street	Lakeside Dr.
Swope		Pezzi	Longley Lane
		Poplar Street #1	Patriot (Huffaker)
		Poplar Street #2	Peckham Lane
		Sparks Ave	Sierra Plaza
		Terminal Way	South Virginia Street

A summary of TMWA's and SPCC's artificial recharge program is given below:

- 1990 Project proposal and initiation
- 1991 Basic data collection - spreading basins and well injection
- 1992 Injection applications to Division of Water Resources and Nevada Division of Environmental Protection
- 1993 SPCC recharged 81.2 ac-ft of water at several wells.
- 1994 SPCC recharged 9.2 ac-ft of water at the Lakeside Well.
- 1995 SPCC recharged 116 ac-ft of water at the Lakeside Well.
- 1996 SPCC recharged 131.5 ac-ft of water at the Lakeside Well.
- 1997 SPCC collected data toward recharge and water treatment at the Poplar #1 Well  
SPCC recharged 111.3 ac-ft of water at the Lakeside Well. SPCC pilot tested recharge and groundwater treatment at the Poplar #1 well. The Poplar #1 tests injected 21.8 ac-ft of water.
- 1998 SPCC recharged a total of 550 ac-ft of water at the Lakeside Well and View Street Wells.
- 1999 SPCC recharged a total of 778 ac-ft of water at four production wells.
- 2000 SPCC recharged a total of 1717 ac-ft of water at thirteen production wells.
- 2001 TMWA recharged a total of 2693 ac-ft of water at thirteen production wells.
- 2002 TMWA recharged a total of 2177 ac-ft of water at thirteen production wells.
- 2003 TMWA recharged a total of 2401 ac-ft of water at twelve production wells.
- 2004 TMWA recharged a total of 1815 ac-ft of water at twelve production wells.

Well	Injection potential	Elevated arsenic
1. 4 <sup>th</sup> Street *		
2. 21 <sup>st</sup> Street		
3. Delucchi Lane	low	
4. El Rancho Dr.		
5. Galletti Way		
6. Glenn Hare *		
7. Greg Street	low	As
8. High Street		
9. Holcomb Lane	low	
10. Hunter Lake *		
11. Lakeside Dr. *		
12. Longley Lane	low	
13. Patriot		
14. Peckham Lane		
15. Pezzi		As
16. Poplar Street #1 *	low	As
17. Poplar Street #2	low	
18. Reno High (aka Idlewild) *		
19. South Virginia Street	low	
20. Sparks Ave	low	
21. Swope	low	
22. Terminal Way	low	As
23. View Street *		As

### C. Receiving Water Characteristics

The native groundwater being augmented by the addition of surface water meets all drinking water standards and has a TDS of 150-350 mg/l and pH range from 6.5 - 8.5. Other values include total alkalinity = 80-125 mg/l, sulfate = 5-60 mg/l, calcium = 10-30 mg/l, sodium = 10-25 mg/l, and nitrate = (less than 0.2) - 3 mg/l.

### D. Procedures for Public Comment

The Notice of the Division's intent to renew the permit authorizing the facility to discharge to the ground water of the State of Nevada subject to the conditions contained within the permit, was sent to the *Reno Gazette-Journal* for publication no later than January 30, 2006. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of 30 days following the date of the public notice.

The comment period can be extended at the discretion of the Administrator. All written comments received during the comment period will be retained and considered in the final determination.

A public hearing on the proposed determination can be requested by the applicant, any affected state, any affected interstate agency, the regional administrator or any interested agency, person or group of persons.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings will be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

**E. Proposed Determination**

The Division has made the tentative determination to renew the proposed permit.

**F. Proposed Effluent Limitations and Special Conditions**

1. The injectate and affected groundwater shall be limited and monitored by the Permittee and reported to the Division pursuant to this permit as specified below:
  - a. The injectate shall meet drinking water standards for all constituents. The receiving ground water shall not be degraded with respect to the physical, biological and chemical conditions, including trihalomethanes;
  - b. The injection pressure shall not exceed that which is calculated to initiate new fractures or propagate existing fractures in the zone of injection or the confining formation between the zone for injection and any aquifer system. Maximum injection pressure must be calculated by using the formulas as specified in NAC 445A.911 and shall be measured at the injection wellhead. (Wells are currently operated such that 3-5 lbs of pressure is exerted on the pump wellhead); and
  - c. Injection may not adversely impact contaminated groundwater within the Truckee Meadows basin.
  - d. A laboratory certified by the State of Nevada must perform all analyses. Testing methods for constituents must be EPA or Division approved. **The UIC Program requires inorganic analyses of metals for “Total Recoverable Metals” in which samples are not filtered and are preserved with an acid in the field. Any exceptions to this policy must be requested and pre-approved by the UIC program prior to sampling. It must be clearly stated on all reports which analyses were used.**
  - e. The analytical method detection limits for all chemical constituents must be at least as low as primary or secondary drinking water standards when applicable.
  - f. The Division may decrease or increase the monitoring of any parameter for good cause.
  - g. This permit does not contain limits for cumulative volumes injected during the recharge season.
2. Samples taken in compliance with the monitoring requirements specified in this permit shall be taken at ports on the distribution system piping within the zones established by the

permittee listed under permit Part I.A.1.

3. The following parameters shall be monitored by the permittee and be reported as specified in permit Part I.A.7. The injection pressure and injection rate measurements shall be taken as close to the same time as possible.

**TABLE 1**

<b><u>Parameter</u></b>	<b><u>Location</u></b>	<b><u>Monitoring Frequency</u></b>	<b><u>Limitations</u></b>
a. Constituents as listed under Attachment "B" of this permit	Injectate (distribution system) for each of the <b>4 zones</b> identified in Part I.A.1  Produced water from each well that was used for recharge the previous season	Quarterly during recharge  Quarterly during pumping (year-round)	Concentrations may not exceed enforceable State and Federal Primary and Secondary Drinking Water Regulations
b. Total Trihalomethanes; Bromodichloromethane; Bromoform; Dibromochloromethane; and Chloroform.	Produced water from each well that was used for recharge the previous season	Quarterly from 22 distribution system locations during pumping (year-round)	Running Annual Average (RAA) of Total Trihalomethanes for the past 4 Quarters may not exceed Primary Drinking Water Standards
c. Haloacetic acids (HAA5); Dichloroacetic acid; Trichloroacetic acid; Monochloroacetic acid; Bromoacetic acid; and Dibromoacetic acid.	Produced water from each well that was used for recharge the previous season	Quarterly from 22 distribution system locations during pumping (year-round)	Running Annual Average (RAA) of Haloacetic acids for the past 4 Quarters may not exceed Primary Drinking Water Standards
d. Chlorine concentration	Injectate (distribution system) for each of the <b>4 zones</b> identified in Part I.A.1	Monthly during recharge	Injectate may not exceed Primary Drinking Water Standards
e. Groundwater Elevations (amsl) and Depth to Water	Recharge wells	Continuous using SCADA (data acquisition system) during recharge and non-recharge periods	Monitor and Report
f. Injection rate (gal/min) and Cumulative volume (gal)	Totalizing flow meter with capability for instantaneous flow rate. Meter to be located on the injection pipe line between the injection pump and the wellhead	Continuous using SCADA during recharge period	Monitor and Report

**G. Rationale for Permit Requirements**

The permit conditions will help to ensure that the injectate does not adversely affect the existing water quality or hydrologic regime. Verification will be performed to ensure that injected fluid quality remains constant and meets drinking water standards. In particular, NDEP is concerned that recharge projects do not create chlorinated organics in the groundwater due to the chlorination treatment of injected water.

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Date: December 23, 2005